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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/782,821

02/23/2004

Hiroki Futatsuya

040065

5438

23850 7590 11/07/2008
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EXAMINER

GUILL, RUSSELL L

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

11/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/782,821	FUTATSUYA ET AL.	
	Examiner	Art Unit	
	Russ Guill	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an Amendment filed October 15, 2008. No claims were added or canceled. Claims 1 – 11 are pending. Claims 1 – 11 have been examined. Claims 1 – 10 have been rejected. Claim 11 is allowable over the prior art of record.
2. The Examiner would like to thank the Applicant for the well-presented response, which was useful in the examination process. The Examiner appreciates the effort to carefully analyze the Office Action, and make appropriate arguments and amendments.
3. This Office Action is NON-final due to new rejections.
4. The Applicant is invited to call the Examiner to review proposed claims prior to filing a response.
5. A telephone call was placed to the Applicant on November 3, 2008, in order to discuss examiner's amendments. A message was left, but no return call was received.

Response to Remarks

6. Regarding claims 1 – 11 rejected under 35 USC § 112, second paragraph:
 - a. Applicant's claim amendments overcome the rejections.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1 – 5 and 6 - 10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

a. Regarding claims 1 – 5, a valid process under 35 USC § 101 must either 1) transform underlying subject matter, or 2) be tied to another statutory class, such as a particular apparatus. In order to qualify as a statutory process, the claim should positively recite the other statutory class to which it is tied, for example by identifying the apparatus that accomplishes the method steps. A recitation of a computer in the preamble does not appear to be sufficient to tie the process to a particular apparatus. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). [I]t is assumed that the preamble language is duplicative of the language found in the body of the claims or merely provides context for the claims, absent any indication to the contrary in the claims, the specification or the prosecution history.

b. Regarding claims 6 – 10, none of the claim limitations appear to expressly or inherently require tangible physical components. An ordinary artisan interpreting the claim in light of the specification would reasonably interpret the claim as encompassing a purely software simulation system. The specification at page 13, lines 7 – 28 appears to allow the invention to be a software program product.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

a. Claims 6 - 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

i. Regarding claim 6, the claim recites in lines 7 - 8, "the estimated amount of occurrence of local flare". The term appears to have insufficient antecedent basis. Dependent claims inherit the defects of their parent claim.

Allowable Subject Matter

10. Regarding claims 1 - 10, any indication of allowability is withheld pending the resolution of the outstanding rejections.

11. Claim 11 is allowable over the prior art of record.

12. Following is an examiner's statement of reasons for indicating allowable subject matter.

13. While Takahashi ("Proximity effect correction using pattern shape modification and area density map") teaches dividing a layout of a photo mask into a plurality of areas; calculating an average value of beam intensity in each of the areas; and LaFontaine ("Analysis of flare and its impact on Low-k1 KrF and ArF lithography") teaches calculating light intensity in each of a plurality of areas; estimating an amount of occurrence of local flare in each of the areas on the basis of each of the average values;

neither of these references either alone or in combination with the prior art of record teaches a computer readable storage medium having a computer program for use in optical corrections to obtain a more accurate image for simulating the amount of occurrence of local flare, specifically including:

a. Regarding claim 11:

when a circular-shaped light source is used, the average value of light intensity

$$\bar{I} = \sum_{k=1}^N F_k S_k S_k^*, \text{ and } N \text{ is } 1 \text{ or more natural number, } F_k \text{ is a weighting factor of diffracted light, } S_k$$

is the amplitude of the diffracted light, and $F_k = A_k / (\sigma^2 \pi)$ where A_k is the area shared between a circle C having a radius NA, the numerical aperture of the lens, and a circle S_k having a radius of the light source with respect to NA, and r is the radius of the circular shaped light source with respect to NA, and

when a ring-shaped light source is used, $F_k = A_k' / (\sigma_2^2 \pi - \sigma_1^2 \pi)$ the average value of light intensity $\bar{I} = \sum_{k=1}^N F_k' S_k' S_k'^*$, and N is 1 or more natural number, F_k' is a weighting factor of diffracted light, S_k' is the amplitude of the diffracted light, and $F_k' = A_k' / (\sigma_2^2 \pi - \sigma_1^2 \pi)$ where A_k' is the area shared between a circle C having a radius NA, the numerical aperture of a lens, and a ring S_k' having a radius of the light source with respect to NA, where σ_1 is the inside radius and σ_2 is the outside radius of the ring-shaped light source with respect to NA.

in combination with the remaining features and elements of the claimed invention.

14. It is for these reasons that the claimed invention distinguishes over the prior art of record.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russ Guill whose telephone number is 571-272-7955. The examiner can normally be reached on Monday – Friday 9:30 AM – 6:00 PM.

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16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Russ Guill
Examiner
Art Unit 2123

RG

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123